MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES

Public Health Preparedness and Response UPDATE

Keeping You Informed

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Mapping through Disasters

When disaster strikes, responders make quick moves and decisions to keep individuals safe and ultimately save lives. Responders work in partnership to ensure that resources are brought together to aid the area and individuals affected. During an emergency, Geographic Information Systems (GIS) can enhance those response efforts reducing time and creating efficiencies to aid emergency response. Information that once would have taken a significant amount of time to process can be made accessed quicker and faster with the help of GIS.

A member of the environmental team surveys the destruction caused by the recent tornado in Caruthersville.

GIS uses technology to bring together information about events, resources, wind patterns and other relevant information by a particular physical location. GIS provides a different type of tool for problem solving. GIS can provide answers to questions like, "Which hospital can we reroute our injured to?" or "What streets need to be evacuated?"

The Missouri Department of Health and Senior Services' (DHSS) GIS Team is an integral part of the emergency response process that includes planning, mitigation, response and recovery. DHSS' GIS Team can support response efforts in an Emergency Operations Center, the Department's Situation Room (DSR) or Mobile Command Center during an emergency. The team's primary function is to input information about the event and quickly transform it into an easily viewed map or graph. Information is updated as the situation changes and customized maps are created. Through the Internet, the collected data can be made available to emergency managers statewide.

Most recently, the DHSS GIS Team responded to the Caruthersville tornado disaster. The team was called in to assist environmentalists and local responders with the assessment of public health nuisances on properties that had received damage or were completely destroyed. Upon arrival and after meeting with the Mayor and local emergency managers, the group went to work putting together a logical and systematic inspection route for the environmentalists.

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The team was able to add the path of the tornado into the GIS and compare it with population data to see how many houses and what type of neighborhoods were affected. Since there were few street signs remaining, the team was not always able to get a good address for a site. But, by imposing the locations found by the Global Positioning System (GPS) over aerial and street maps, the group was able to show more precise locations. This allowed the local emergency managers the ability to use the maps more effectively to identify lots and track property owners.

DHSS environmental inspectors visited over 150 sites with damage and destruction caused by the tornado.

DHSS environmental inspectors visited every affected location, recorded data about the conditions of the site and took pictures. Using handheld GPS units, the team also collected longitude and latitude points for each location. The information collected was entered into a database that was used to create maps and graphs of the recovery progress. These maps and graphs were used to track areas that had been inspected and identified areas that still needed to be inspected.

Without this information on maps and graphs the process would have been much different. Teams would have had to meet regularly to compare areas they had inspected, identify which areas that needed to be completed and draft new inspection areas. This manual process would have cost the recovery efforts many hours each day.

With the help of the DHSS GIS Team, the Mayor and local emergency managers were able to visualize events and resources, and make decisions quickly. The GIS Team was able to provide the local responders with an idea of the affected area, as well as a list of neighborhoods, nursing homes, and daycares that needed special attention. Information and mapping was continuously updated with current events throughout the recovery efforts.

An example of homes demolished by the tornado.

The Caruthersville event illustrated just some of the ways that DHSS is using GIS during public health emergencies. GIS can also be used to assist with operations such as locating outbreaks, tracking contagions and determining at-risk populations.

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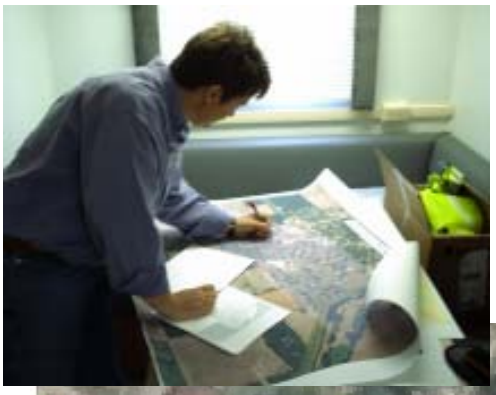
A DHSS GIS Team member works with a map produced using Geographic Information Systems to identify areas that have been inspected.



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Some examples of uses for GIS in public health emergencies include:

➔ Logistics – The GIS Team can track where emergency assets are located, where the areas of need are, and find the best route to get them there, including such things as medical supplies, food and water. The team can also assist in deciding the best location for homeless shelters and temporary clinics. When hospitals are closed, GIS can find the closest facilities to fill the gaps.

➔ Syndromic mapping – Outbreaks of infectious disease can often occur following a disaster. GIS can be used with systems that monitor patient symptoms and allow public health officials to quickly find areas that are of concern and focus their efforts in specific regions.

➔ Environmental – Before an affected area is clear to be opened it must be environmentally sound. Soil, air and water sampling data can be managed with GIS, as well as tracking the clean-up progress.

➔ Status – Status maps can keep managers informed of the current status of events. They can look at a map and quickly see what areas have been cleared, where the current location of teams are, and which areas still need to be evaluated.

The DHSS GIS team consists of four GIS professionals: two GIS Specialists and two GIS Analysts, as well as other trained GIS users. To gain additional information or access DHSS' GIS capabilities, please visit the DHSS GIS web site at http://dhss.mo.gov/GIS.

DHSS GIS Team members work to create maps for inspectors to use as they survey properties that have been damaged by the tornado.

Ready in 3 Pandemic Influenza Educational Booklet

The Missouri Department of Health and Senior Services is developing an educational booklet, "Preparing for Pandemic Flu: A Community Guide," that emphasizes learning about, planning for and protecting against pandemic flu. This piece is being developed by the Pandemic Influenza Public Communications Sub-committee for statewide distribution and will serve as a centerpiece for public information, education and planning. These materials will be printed and made available to local public health agencies and other stakeholders this fall.

If you have additional questions, please contact Brian Quinn, Office of Public Information, at 573-751-6062 or brian.quinn@dhss.mo.gov.

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Prepared by the DHSS' Center for Emergency Response and Terrorism

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The Center for Emergency Response and Terrorism protects the lives and health of all Missourians from natural and man-made public health threats through prevention, early detection, and rapid, coordinated response to emergencies and disasters.